THE ACTUARY AS STRATEGIST

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Biography

Sholom Feldblum is an Associate Actuary with the Liberty Mutual Insurance Company in Boston, Massachusetts. He was graduated from Harvard University in 1978 and spent the next two years as a visiting fellow at the Hebrew University in Jerusalem. He became a Fellow of the CAS in 1987, a CPCU in 1986, an Associate of the SOA in 1986, and a member of the American Academy of Actuaries in 1989. In 1988, while working at the Allstate Research and Planning Center in California, he served as President of the Casualty Actuaries of the Bay Area and as Vice President of Research of the Northern California Chapter of the Society of CPCU. In 1989, he served on the CAS Education and Testing Methods Task Force. He is presently a member of the CAS Syllabus Committee, the CAS Committee on Review of Papers, the Advisory Committee to the NAIC Casualty Actuarial (EX5) Task Force, and the Actuarial Advisory Committee to the NAIC Risk Based Capital Task Force, and he is the quarterly review editor for the *Actuarial Review*. Previous papers of his have appeared in *Best's Review*, the *CPCU Journal*, the *Proceedings of the Casualty Actuarial Society*, the *Actuarial Digest*, the *CAS Forum*, and the *CAS Discussion Paper Program*.

Abstract

Traditional actuarial pricing procedures rely on historical experience to match future premiums with expected losses and expenses. The pricing methods give little emphasis to marketplace competition, expected returns, marketing strategy, or consumer desires.

Competitive strategy places new tasks upon the actuary:

- Successful pricing does not proceed from the bottom up: the compilation of experience data to generate indicated rate revisions. Rather, pricing must begin from the top down: estimating the expected return in the industry, based upon the characteristics of its market, as well as the expected differences in profitability by line of business and by type of insurer.

- Competitive pricing requires examining the strengths and weakness of one's own firm relative to those of competitors, and aligning them with the attributes of the market. Successful strategy involves modifying internal company operations or external industry characteristics to enhance the alignment between the firm and its environment.

- A firm's products are tools to satisfy consumer needs. Insurance marketing and pricing must begin with an analysis of consumer desires and of alternative ways of meeting them. The pricing actuary's task is to evaluate the expected profitability of each method of satisfying consumers.

The old role of the actuary was as a statistician, delving into the company's past. The new role of the actuary is as a strategist, charting the company's future.

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The Pricing Actuary

Let us follow the pricing actuary as he goes about his work. Tom, as we shall call him, begins by compiling experience data: earned premiums, incurred losses, and company expenses of the past three years. He verifies the figures with other company reports, methodically checks for outliers, and considers the effects of catastrophes and other nonrecurring events.

He adjusts the data for both historical and anticipated changes: rate level revisions, premium and loss development, exposure and claim cost trends, and benefit level changes. To form a "permissible" loss ratio, he uses actual and budgeted expenses along with a profit provision determined from a discounted cash flow pricing model. Finally, he compares the adjusted experience loss ratio with the permissible loss ratio, and he recommends a rate revision to the chief actuary.

A few days later, he hears echoes of criticism from the underwriters: *the actuaries are frozen in the past when they should be navigating the future.* But how else can one forecast future experience except by examining past history? Soon, he detects strains of discontent in the executive suites as well: *the proposed rate is above market; we can not sell the policies.* Well, if other companies want to lose money, should we do the same? Actuaries determine the proper rates: the rates that cover the anticipated costs. If one wants to underprice just to please the sales force – that's a task for the marketing department, not for the actuaries.

Unfazed, Tom begins his next rate review. He shakes his head at the naivete of the underwriters, who do not understand sophisticated pricing models. He is saddened by the short-sightedness of the executives, who seem more concerned with market share than with stable earnings. But he finds comfort in the standards promulgated for actuaries; he has not failed his profession.

Direction

Our pricing actuary works from the bottom up. The world about him is stable, insurance coverages are unchanging, competition remains the same. Internally as well, company operations continue as before; only premium rates need be revised. Details of the past, suitably adjusted, become a prognosis for the future.

In truth, the world is ever changing, and the company must change with it. The strategist works from the top down. He asks: *"What returns might we expect in this industry? What competitive forces are driving profits up or down?"* He evaluates the strengths and weaknesses of his own company relative to those of competitors. He aligns his company's strengths with external opportunities; he avoids external threats that might harm his firm. He seeks to change both the environment and his company's operations to perfect the alignment between them. He forecasts what prices he must charge to compete in these markets, and then determines whether these prices will cover costs.

Marketing

The portrait above is still incomplete. Our strategist has entered in the middle, accepting the industry and its products as given. But a firm's products are but means to its objective: satisfying the desires of its consumers.

Consumers do not desire insurance. One can not eat the policy, or wear it; it has no utility in itself. If the consumer is fortunate, he does not use it; he simply pays for it. Consumers wish to avoid losses, or at least their financial consequences, as inexpensively as possible. Insurance is one risk management technique to accomplish this.

Insurance products are never eternal. Many traditional fire policies were replaced by Homeowners' and Commercial Multi-Peril coverages, even as traditional whole life policies are being replaced by universal life and variable life products. Workers' compensation policies for large accounts are being replaced by excess coverage, large deductible policies, and captives. Different financial services, such as insurance, stock brokerage, and banking, are being combined in joint institutions to meet anticipated needs of consumers.

Companies that do not adapt to changing consumer needs slowly fade away. Pricing cannot be divorced from marketing. The pricing actuary is a professional who transforms marketing achievements into financial success.

Industry Analysis

Let us retreat for a moment from marketing back to the traditional province of the actuary: prices and profits. Unlike Tom, though, we do not proceed blindly from the bottom. Tom estimates the cost of the policy, which he presumes the company will charge. He fails to ask whether the market would allow that price – or whether it might allow even a higher price. He never asks the true questions: what is the optimal price, and what are the optimal products?

We begin at the top: What rate of return should the industry expect in this line of business? We then carry down this analysis a further step: What are the company's relative strengths and weaknesses that raise or lower its expected returns? Finally, we ask: What changes to the company's attributes or the characteristics of the environment might raise the return?

Expected Returns

Regulators and academicians often speak of a "fair rate of return" in insurance. The "fair rate of return" is a normative concept: it tells us what prices "ought" to be charged. It is applicable to industries that lack competition, whether because of product attributes or government intervention, where regulators must set rates because the market cannot.

The fair rate of return is meaningful for utilities, where continuously increasing returns to scale lead to "natural" monopolies. The Supreme Court has outlined how regulators should determine rates (*Hope*, 320 U.S., page 603):

> *"The return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise so as to maintain its credit and to attract capital."*

Western economics is an empirical science. It describes how markets work, not how they ought to work. The actuary must he wary lest he confuse the normative, regulatory measure of fairness with the empirical, economic influences on marketplace pricing. Industries differ greatly in the expected rate of return for many reasons other than the level of "risk."

Competitive Forces

The actuarial strategist asks: "What factors affect the expected returns?" Porter (*Competitive Strategy*, 1982) discusses five competitive forces that affect industry returns: ease of entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers, and rivalry among current competitors.

Let us consider the strength of these forces in insurance, with an emphasis on Workers' Compensation and Personal Automobile:

- *Ease of entry:* Up-front sunk costs raise formidable barriers to entry. A manufacturer that must build a plant before commencing operations invests funds for the potential of future profits. Lack of technical experience in the manufacturing operations may make entry even more difficult for a new firm.

  The incipient insurer, in contrast, has few fixed costs to cover and perceives only a small learning curve for underwriting. The new entrant may believe that it need only "hang out a shingle" and begin issuing policies. Entry into insurance is common; barriers for licensing and distribution are easy to overcome.

- *Threat of substitution:* Some coverages, such as personal auto in a compulsory insurance jurisdiction, have few substitutes. For other lines of business, alternative risk management approaches are available. Large employers, for instance, may opt for self-insurance or excess coverage as alternatives to standard Workers' Compensation policies. In many industries, insureds may form a risk retention group instead of purchasing commercial insurance.

- *Bargaining power of buyers:* In general, buyers of differentiated retail products have little bargaining power, though their bargaining power increases as differentiation among suppliers decreases. Insureds in most lines are buyers of relatively undifferentiated retail products. Lack of price information among insurance consumers, however, lowers their bargaining power. The net effect of these factors in the insurance industry probably leaves buyers less bargaining power than in most other industries.

- *Bargaining power of suppliers:* The obligation of insurers to pay the damages for which the insured is liable, with little opportunity to question the need or cost of treatment or repair, increases the bargaining power of suppliers (medical practitioners, auto garages, etc.). Insurers are particularly vulnerable to medical cost escalation in Workers' Compensation and automobile insurance, as physicians and hospitals increase billings to insured patients not subject to "managed care."

- *Rivalry among current competitors:* Some observers believe that the insurance industry is over-capitalized, with too many carriers chasing too few insureds. The situation in the commercial lines is exacerbated as independent agency carriers retreat from the personal lines and large insureds leave the commercial insurance market for alternative risk management strategies. Intense rivalry and the slow exit of inefficient insurers heightens competition in the marketplace.

The combined effect of these five forces is unfavorable for the insurance industry. Insurers should expect a highly competitive marketplace, with lower returns than those available to other firms, regardless of the relative degrees of risk. Moreover, the expected rate of return varies by line of business. In Workers' Compensation, for instance, with strong bargaining power of suppliers, intense rivalry among current competitors, and realistic threats of substitution, actual returns have been low for the past decade. These actual returns are not a historical anomaly that will disappear if the system's failings, such as the residual market burdens, are corrected. Rather, the actual returns reflect the expected returns. Competition is strong now and it will remain strong, so expected returns are low.

Strengths and Weaknesses

Changing the industry structure to provide higher expected returns for all firms is rarely feasible. Rather, the strategist asks: *"What are the strengths and weaknesses of my company relative to those of our competitors? How can we change the environment to favor our firm?"*

Several examples should illustrate how one addresses this issue. Porter describes three generic competitive strategies: low cost, differentiation, and focus. These strategies roughly correspond to the categorization of insurers as direct writers, independent agency companies, and regional carriers.

- *Low cost:* The most efficient direct writers, with their low distribution costs, are best served by mass markets and standard policy forms. State Farm and Allstate, for instance, thrive in jurisdictions with little regulatory interference in ratemaking and few constraints on underwriting freedom, and in lines of business with large consumer bases. Personal automobile, Homeowners', and CMP in open competition states constitute the ideal environment for these carriers.

- *Differentiation:* Independent agency companies can not compete successfully on price alone. Instead, they seek lines of business where policy differentiation appeals to the needs of sophisticated buyers. Examples are products liability and general liability for large corporations, professional liability for associations, and captive management. These carriers emphasize quality service and the correspondence of the policy forms to the needs of specific insureds. They downplay pure price competition.

- *Focus:* Regional carriers do best in jurisdictions with unusual rate regulation or underwriting restrictions, since they can adapt their operations to the requirements of specific markets. Examples are personal automobile insurance in Massachusetts and Workers' Compensation coverage in jurisdictions with unusual benefit structures. Several nationwide personal auto carriers have left Massachusetts, despite their success in other jurisdictions. Some regional carriers have remained, sometimes even prospering, by focusing on small but profitable market segments. Similarly, some regional Workers' Compensation carriers have succeeded in Southern California, despite the difficulties that larger carriers face.

Innovations in cost, differentiation, and focus may be beneficial, regardless of the corporate strategy chosen by the insurer. Cost reductions benefit even the independent agency company following a differentiation strategy, and policy form innovations benefit even the direct writer seeking a low cost strategy. This is particularly true for competition within strategic groups: the low cost direct writers may compete among each other partially by differentiation strategies, and the commercial lines independent agency companies may compete among each other partially by cost.

Competitive success requires a candid assessment of the firm's strengths and the requirements of the market. For a national independent agency carrier to compete on cost in the personal lines of business is foolhardy. Competing with regional carriers in unusual market niches may be equally disappointing. If the firm desires to compete in the personal lines marketplace, it must differentiate its product to appeal to large but specialized market segments, such as substandard auto and high-priced homes.

Traditional actuarial rate indications are irrelevant to the firm's pricing and marketing strategy. Rather, the actuary must work with the marketing department to identify those markets most suited to the company's strengths. The actuary first estimates the price needed to sell the product and then, by calculating policy costs, determines if this price generates an adequate rate of return. If it does not, the optimal response is to change the product or the target market; the second-best solution is to change the price.

Costs

The examples above concentrate on the distribution system, the link between the insurer and its consumers. No less important are costs, or the relationships between the insurer and its suppliers. The strategist seeks to modify the external environment or the firm's operations to reduce the bargaining power of suppliers. Examples from personal automobile and Workers' Compensation illustrate this; in each case, the insurer offers inducements to consumers that lower overall costs.

- *Personal Automobile:* Inflated automobile repair costs and excessive medical fees are difficult to counter once they have been incurred, since the insurer is obligated to pay for services rendered. Some insurers therefore offer free inducements to claimants to use company sponsored services. For instance, the insurer may provide a company owned automobile repair service along with free replacement vehicles during the repair time. Claimants benefit from the efficient repair service, and the insurer gains by avoiding the excessive billings of independent auto shops.

- *Workers' Compensation:* An employer may skimp on costs by offering less generous employee health benefits, not providing in-house medical services, and fighting many compensation claims. A common result is that employees label dubious injuries and illnesses as work related, seek expensive medical treatment, and hire attorneys to handle their claims. The physicians and lawyers have strong bargaining power, since state statutes compel the carrier to reimburse them for their services.

The insurer may reduce its overall net costs by providing in-house medical services and more liberal non-occupational health coverage, either at cost or even slightly below cost. Employees treated by in-house nurses and physicians, and those who obtain partial reimbursement under group health plans, are less likely to file compensation claims.

In these two examples, the insurer changes the external environment, reducing the power of suppliers (physicians, attorneys, repair shops), simply by restructuring its relations with consumers. The task of the actuarial strategist is to forecast these effects and the resulting costs for the insurer, not simply to churn out rate indications.

Firm Orientation: Products vs. Consumers

Successful firms in stable or expanding industries are often product oriented. They may be innovative and aggressive, enhancing their products or taking consumers from competitors. The product may even be redesigned for new market segments. But the orientation remains: *"How do we sell the products which we produce?"*

Many insurers follow this approach. The product, or the insurance policy, is a "given." After all, some products, such as automobile liability and Workers' Compensation, are mandated by statute or regulation; other products, such as automobile physical damage and Homeowners', are required by lending institutions; and some products, such as general liability and professional malpractice, are essential for business operations.

This orientation may work in expanding industries, which provide ample opportunities for all firms. In mature or declining industries, such as mainframe computers or tobacco products, which may have strong competition and low returns, it is a forerunner of failure.

Consumer Needs

Consumers do not seek insurance policies. They seek *financial security*, whether they are private individuals or multinational corporations. Insurance is one form of risk management, and risk management is one element of financial operations. The insurer must satisfy the needs of the consumer, and adapt its products to meet these needs. Examples from Workers' Compensation and automobile insurance illustrate this process.

- *Workers' Compensation:* In the early twentieth century, traumatic industrial accidents were a serious impediment to employee welfare. Compensation carriers, who provided loss engineering services, medical treatment for the disabled, and rehabilitation services, fulfilled desirable social purposes while generating cost savings for employers.

  The market has changed radically. Traumatic accidents have given way to stress claims, and loss engineering is often less effective than managed medical care. The growth of the residual pools has raised costs for voluntary insureds. Some employers find that self-insurance with excess coverage, in-house medical facilities, and carefully managed care for unusual claims may reduce overall costs and provide greater benefits to disabled employees.

  Actuarial tinkering with premium rates will not tempt these employers back to the commercial insurance market. But insurers have a host of services they can provide: claims handling expertise, funding mechanisms for benefit payments, vocational rehabilitation, and insurance coverages for excess layers. The actuary must determine what functions the insurer can perform more efficiently than the employer, and then price and market those services.

- *Automobile Insurance:* Few consumers are enamored with automobile insurance. You pay a thousand dollars a year and see no benefit. Finally, after a minor accident, another driver files a baseless claim against you and collects $2,000 from your insurer. [For this swindle you paid a thousand dollars a year?] One day, you are injured in an accident: whiplash (as your doctor testifies). But the other driver's insurer contests the claim. Only after six months does your lawyer obtain a settlement, though hardly an adequate one: $1,500 for you, and $500 for him. [After paying a thousand dollars a year, you get cheated when you file a claim; is this fair?]

  The consumer dissatisfaction is widespread, and the insurer who solves it will reap enormous rewards. Some have tried combining insurance protection with other financial services, such as banking and brokerage. Others have suggested offering automobile insurance in "cafeteria-style" employee benefit programs. Underwriting and distribution problems have hampered these approaches. The task of the actuary is to find solutions to the consumer needs, not to find needs to match the insurance product.

Tom's daughter, Esther, follows in her father's career. She probes to find consumer needs that her firm might fulfill, whether it be financial planning for a newly married couple or toxic waste disposal for a chemical manufacturer. She considers changes in the regulatory and economic environment that affect either the needs of the public or her firm's ability to satisfy them. She estimates the expected profitability that may be achieved by each service, and she examines her firm's characteristics that may lead to better or worse results. She recommends operational changes or new products to better meet consumer needs. She is the actuary as strategist.